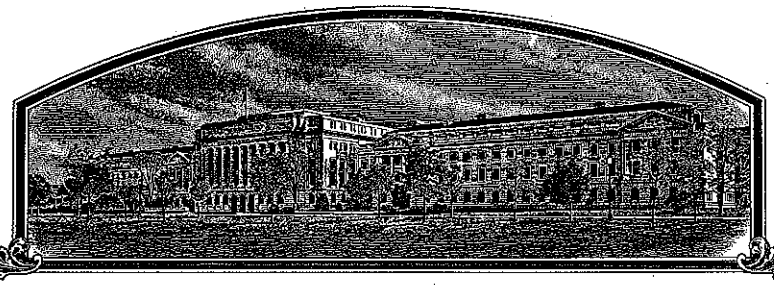
No. 200700030



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Seminis Vegetable Seeds, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

LETTUCE

'Constanza'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of Washington, D.C. this second day of October, in the year two thousand and eight.*

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions*

Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
Seminis Vegetable Seeds, Inc.

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
RS 06424886

3. VARIETY NAME
Constanza

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
2700 Camino del Sol
Oxnard, CA 93030-7967

5. TELEPHONE *(include area code)*
(805) 647-1572

6. FAX *(include area code)*
(805) 918-2545

FOR OFFICIAL USE ONLY

PVPO NUMBER
200700030

FILING DATE
November 14, 2006

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
Corporation

8. IF INCORPORATED, GIVE STATE OF INCORPORATION
California

9. DATE OF INCORPORATION
4 June 1962

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*

Carol Miller
Seminis Vegetable Seeds, Inc.
37437 State Hwy 16
Woodland, CA 95695

Marcel Bruins
Seminis Vegetable Seeds, Inc.
P.O. Box 97, NL-6700 AB
Wageningen, Netherlands

FEES RECEIVED

FILING AND EXAMINATION FEES:
$ 4382 —
DATE 11/14/06

CERTIFICATION FEE:
$ 768 —
DATE 8/26/2008

11. TELEPHONE (Include area code)
(530) 669-6274

12. FAX (Include area code)
(530) 669-6112

13. E-MAIL
carol.l.miller@seminis.com

14. CROP KIND *(Common Name)*
Lettuce

16. FAMILY NAME *(Botanical)*
Asteraceae

15. GENUS AND SPECIES NAME OF CROP
Lactuca sativa L.

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☑ NO

18. DOES THE VARIETY CONTAIN ANY TRANSGENES? ***(OPTIONAL)***
☐ YES ☐ NO
IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERICALIZATION. _____

19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)
- a. ☑ Exhibit A. Origin and Breeding History of the Variety
- b. ☑ Exhibit B. Statement of Distinctness
- c. ☑ Exhibit C. Objective Description of Variety
- d. ☐ Exhibit D. Additional Description of the Variety *(Optional)*
- e. ☑ Exhibit E. Statement of the Basis of the Owner's Ownership
- f. ☑ Exhibit F. Declaration Regarding Deposit
- g. ☐ Voucher Sample *(3,000 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
- g. ☑ Filing and Examination Fee ($4,382), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☐ YES *(If "yes", answer items 21 and 22 below)* ☑ NO *(If "no", go to item 23)*

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES?
☐ YES ☑ NO
IF YES, WHICH CLASSES? ☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☑ NO
IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS.
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED
(If additional explanation is necessary, please use the space indicated on the reverse.)

23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☑ YES ☐ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☑ YES ☐ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER		SIGNATURE OF OWNER	
Carol L. Miller			
NAME *(Please print or type)*		NAME *(Please print or type)*	
Carol L. Miller			
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
PVP Specialist	11-13-06		

(See reverse for instructions and information collection burden statement)

20070030

GENERAL INSTRUCTIONS: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E, F; (3) for a tuber reproduced variety, verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; and (4) payment by credit card or check drawn on a U.S. bank for $4,382 ($518 filing fee and $3,864 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice).* **NEW:** With the application for a seed reproduced variety **or by direct deposit soon after filing**, the applicant must provide at least 3,000 viable untreated seeds of the variety *per se*, and for a hybrid variety at least 3,000 untreated seeds of each line necessary to **reproduce** the variety. Partial applications will be held in the PVPO for not more than 90 days; then returned to the applicant as un-filed. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a payment by credit card or check payable to "Treasurer of the United States" in the amount of $768 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

Plant Variety Protection Office
Telephone: (301) 504-5518 **FAX:** (301) 504-5291
General E-mail: PVPOmail@usda.gov
Homepage: http://www.ams.usda.gov/science/pvpo/PVPindex.htm

SPECIFIC INSTRUCTIONS:
To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and **provide evidence** that the permanent name of the application variety (even if it is a parental, inbred line) has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: U.S. Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Programs, **Seed Regulatory and Testing Branch**, 801 Summit Crossing Place, Suite C, Gastonia, North Carolina 28054-2193 Telephone: (704) 810-8870. http://www.ams.usda.gov/lsg/seed.htm.

ITEM

19a. Give:
(1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach replicated statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, *etc.*

19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

20. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

23. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

24. *See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.*

22. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*

23. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*

Germany: 1st Sale 01-Dec-05; Czech Republic: 1st Sale 01-Jun-06; Australia: 1st Sale 01-Jul-06; New Zealand: 1st Sale 01-Jul-06; Italy: 1st Sale 01-Aug-06; Spain: 1st Sale 01-Aug-06.

24. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*

Europe: PVP filed 03-Feb-06 #2006/0358; Australia: PVP filed 21-Jul-06 # 2006/090 See attached RAD 8/13/2008

Aphid resistance in compositae – Rijk Zwaan

Question 24 continued

RAD 8/13/08

Publication	Pub. Date	Filed	Title
ZA9704922A	1998-03-03	1997-06-04	APHID RESISTANCE IN COMPOSITES.
WO9746080A1	1997-12-11	1997-06-04	APHID RESISTANCE IN COMPOSITES
US5977443	1999-11-02	1996-11-12	Aphid resistance in composites
TR9802533T2	1999-03-22	1997-06-04	Bilesikgillerden olan bitkilerde yaprak biti direnci.
PT0921720T	2004-05-31	1997-06-04	RESISTENCIA AO PULGAO EM ASTERACEAS
PL0330356A1	1999-05-10	1997-06-04	IMMUNITY AGAINST PLANT LOUSES AMONG COMPOSITAE
PL0188494B1	2005-02-28	1997-06-04	IMMUNITY AGAINST PLANT LOUSES AMONG COMPOSITAE
NZ0333148A	2000-06-23	1997-06-04	APHID RESISTANCE AND CRA PHENOTYPE ABSENCE IN COMPOSITES
NL1003261C	1997-12-10	1996-06-04	BLADLUISRESISTENTIE IN COMPOSIETEN.
NL1003261A	1997-12-10	1996-06-04	BLADLUISRESISTENTIE IN COMPOSIETEN.
IL0127280A0	1999-09-22	1997-06-04	APHID RESISTANCE IN COMPOSITES
HU0002164AC	2002-08-28	1997-06-04	APHID RESISTANCE IN COMPOSITES
HU0002164AB	2000-11-28	1997-06-04	APHID RESISTANCE IN COMPOSITES
ES2210528T5	2007-12-16	1997-06-04	PLANTAS DE LA FAMILIA COMPOSITAE RESISTENTES A LOS AFIDOS.
ES2210528T3	2004-07-01	1997-06-04	PLANTAS DE LA FAMILIA COMPOSITAE RESISTENTES A LOS AFIDOS.
EP0921720B2	2007-06-06	1997-06-04	APHID RESISTANCE IN COMPOSITES
EP0921720B1	2004-01-14	1997-06-04	APHID RESISTANCE IN COMPOSITES
EP0921720A1	1999-06-16	1997-06-04	APHID RESISTANCE IN COMPOSITES
DK0921720T4	2007-09-24	1997-06-04	Bladlusresistens i Compositae
DK0921720T3	2004-05-10	1997-06-04	Bladlusresistens i Compositae
DE69727233T3	2007-12-27	1997-06-04	BLATTLÄUSERESISTENZ IN COMPOSITAE
DE69727233T2	2004-11-18	1997-06-04	BLATTLÄUSERESISTENZ IN COMPOSITAE
DE69727233C0	2004-02-19	1997-06-04	BLATTLcUSERESISTENZ IN COMPOSITAE
CZ9803998A3	1999-09-15	1997-06-04	GENETICALLY MODIFIED PLANTS AND PROCESS FOR OBTAINING THEREOF
CA2255606AA	1997-12-11	1997-06-04	APHID RESISTANCE IN COMPOSITES
AU2981397A1	1998-01-05	1997-06-04	APHID RESISTANCE IN COMPOSITES
AU0726823B2	2000-11-23	1997-06-04	APHID RESISTANCE IN COMPOSITES
AT0257644E	2004-01-15	1997-06-04	BLATTLcUSERESISTENZ IN COMPOSITAE

Granted EU patent **EP0921720** (January 14, 2004)

Granted adjusted EU patent **EP0921720** (June 6, 2007) mentioning the opposition decision (opposition dropped by all (5) opponents; SVS has a license)

Gone national in various EU countries incl. Turkey

Pending CA patent application **CA2,255,606** (November 18, 1998) with the 14 claims of original EU granted patent (see above)

Granted NZ patent **NZ333148** (June 23, 2000)

Granted AU patent **AU726823** (November 23, 2000)

EXHIBIT A
Origin and Breeding History of
Iceberg Lettuce, CONSTANZA (RS06424886):

The iceberg lettuce cultivar **'CONSTANZA'** was developed through pedigree selection at the Seminis Vegetable Seed, Inc. research station located in Nimes, France. The initial cross was made between the Seminis iceberg lettuce variety 'Denver', and the Seminis breeding line 19983979 ('SBL'). 'SBL' was an iceberg lettuce type which harboured the *Nr* resistance gene against Lettuce Aphid (*Nasonovia ribis nigri*).

'SBL' was derived through backcrossing and pedigree selection out of a cross between the commercial varieties 'Salinas' and 'Kelvin' (US PVP # 8700182, GB PVP # 3798) and 'PIVT 280'.

'PIVT 280' was a wild *Lactuca virosa* line and served as the *Nr* gene donor to 'SBL'. 'PIVT 280' came from the former Institute for Horticultural Plant Breeding (IVT), located in The Netherlands, and was used to introduce *Nasonovia* resistance (via the *Nr* gene) into cultivated lettuce (*Lactuca sativa*). In 1981, the Institute for Horticultural Plant Breeding released to all Dutch breeding companies a *Lactuca sativa* line (793202) which contained the *Nr* gene from the *Lactuca virosa* line 'PIVT 280'.

Breeding/Selection/Evaluation Scheme:

1998: Denver and SBL where grown in the greenhouse and crosses were made.

1999: The F1 hybrid (SBL X Denver) and the recurrent parent Denver where grown in the greenhouse and a backcross was made:
F1BC1 {Denver X (SBL X Denver)}

2000: Spring/Summer: Three F2BC1 populations of the cross F1BC1 {Denver X (SBL X Denver)}were made in spring and summer.
Fall: Three F2BC1 populations were grown in the breeding field at the research station in the autumn. 88 single plant selections were taken for further breeding and making F3BC1 populations.

2001: Spring: 88 of the F3BC1 populations were tested for *Bremia* resistance, resistance *Nasonovia ribis nigri* and intermediate resistance to Lettuce Mosaic Virus (LMV).
Fall: Only the populations resistant to all three diseases were put in a breeding field at the Murcia research station in autumn. Out of F3BC1 population 20012772, ten single plants were selected to create F4BC1 populations.

2002: Spring: All ten of the F4BC1 populations were tested for resistance to *Bremia lactucae*, Lettuce Mosaic Virus (LMV) and to the Lettuce aphid (*Nasonovia ribis nigri*). All ten of them appeared to be uniform and resistant for all three diseases.
Spring: All ten of the F4BC1 populations were tested in field trials in France, Italy and Spain for agricultural characteristics and uniformity. In particular, the F4BC1 breeding line 20024886 performed well in all countries and showed good uniformity and good agricultural qualities.

2003: Spring: Breeding line 20024886 was used for maintenance breeding and for a small seed increase, used for experiments only.
Fall: The experimental seed was tested in field trials in France, Italy and Spain for agricultural characteristics, uniformity and stability. The F4BC1 line 20024886 and 20 of the F5BC1 lines created for maintenance of the variety were put together with the seed increase to check uniformity and stability. All seed lots were observed to be uniform and stable. Breeding line 20024886 was selected as source for seed-production and further development of the variety **'CONSTANZA'**.

2004: Approximately 500,000 plants coming from (bulked) seed production of breeding line 20024886 were tested all over Europe in spring, summer, autumn and winter growing conditions, and were compared to breeding line 20024886. In all trials, the resulting crop from the bulked seed was observed to be uniform and stable.

Observations made during three generations of reproduction and during seed increase (2003 – 2005) indicate that 'CONSTANZA' is uniform and stable within commercially acceptable limits. As is true with other lettuce varieties, a small percentage of off-types can occur within commercially acceptable limits for almost any characteristic during the course of repeated multiplications. No off-types or variants are known or expected to occur.

5

EXHIBIT B:
Statement of Distinctness for
Iceberg Lettuce, CONSTANZA (RS06424886):

'CONSTANZA' is a dark green iceberg lettuce variety (Crisphead lettuce) with a high level of *Bremia lactucae* resistance combined with intermediate resistance to Lettuce Mosaic Virus (LMV) and resistance to the Lettuce aphid (*Nasonovia ribis nigri*). The variety was created by pedigree selection methods for open field iceberg lettuce production.

To our knowledge, the most similar variety to 'CONSTANZA' is the commercial iceberg lettuce variety 'DENVER', also of Seminis Vegetable Seeds, Inc. The comparative characteristic that most clearly distinguishes 'CONSTANZA' from 'DENVER' includes, but may not be limited to, resistance to Lettuce Aphid (*Nasonovia ribis nigri*). 'CONSTANZA' has the *Nr* gene which conveys resistance to the Lettuce aphid, whereas 'DENVER' lacks the *Nr* gene and is susceptible to the Lettuce aphid.

'CONSTANZA' can also be distinguished from several other similar lettuce varieties based on disease and insect resistance.

- Resistance to Downy Mildew (*Bremia lactucae*): 'CONSTANZA' has the *R18* gene which coveys resistance to Downy Mildew, whereas the varieties 'Blanco', 'Cornell 456', 'Delmar', 'Premiere' and 'South Bay' lack the *R18* gene and are susceptible to Downy Mildew.
- Resistance to Lettuce Aphid (*Nasonovia ribis nigri*): 'CONSTANZA' has the *Nr* gene which coveys resistance to Lettuce Aphid, whereas the varieties 'Blanco', 'Cornell 456', 'Delmar', 'Premiere' and 'South Bay' lack the *Nr* gene and are susceptible to Lettuce Aphid.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
Lettuce *(Lactuca sativa* L.*)*

NAME OF APPLICANT (S)	TEMPORARY OR EXPERIMENTAL DESIGNATION	VARIETY NAME
Seminis Vegetable Seeds, Inc.		CONSTANZA
ADDRESS *(Street and No. or RD No., City, State, Zip Code, and Country)*		FOR OFFICIAL USE ONLY
2700 Camino del Sol Oxnard, CA 93030		PVPO NUMBER 200700030

Place the appropriate number that describes the varietal character in the boxes below. Place a zero in the first box (e.g. 0 9 9 or 0 9) when number is either 99 or less or 9 or less. Measured data should be the mean of an appropriate number (at least 20) of well space plants. Royal Horticultural Society or any recognized color standard may be used to determine plant colors.

The Location of the Test Area is: Wageningen, Netherlands

Color System Used: Royal Horticultural Society

SPECIFIC VARIETIES USED FOR COMPARISON AS CHECK VARIETIES IN THIS APPLICATION: Use standard regional check varieties, which are adapted to your area. One of the comparison varieties must be the most similar variety used in Exhibit B.

Application Variety (a1) Constanza Most Similar Variety (c1) Denver

Standard Regional Check Variety (c2) Salinas

1. PLANT TYPE: (See List of Suggested Check Varieties on Page 8)

01 = Cutting/Leaf
02 = Butterhead
03 = Bibb
04 = Cos or Romaine
05 = Great Lakes Group
06 = Vanguard Group
07 = Salinas Group
08 = Eastern (Ithaca) Group
09 = Stem
10 = Latin
11 = Other (Specify) _____

(a1) 07 (c1) 07 (c2) 07

2. SEED:

	(a1)	(c1)	(c2)
COLOR 1 = White (Silver Gray) 2 = Black (Grey Brown) 3 = Brown (Amber)	1	1	2
LIGHT DORMANCY 1 = Light Required 2 = Light Not Required	2	2	2
HEAT DORMANCY 1 = Susceptible 2 = Not Susceptible	2	2	2

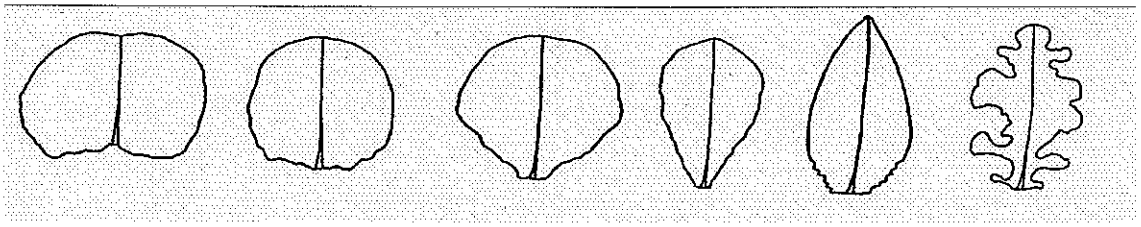
3. COTYLEDON TO FOURTH LEAF STAGE: NOTE: Provide a color photograph or photocopy of the fourth leaf from 20 day-old seedling grown under optimal conditions.

SHAPE OF COTYLEDONS: 1 = Broad 2 = Intermediate 3 = Spatulate

(a1) 2 (c1) 2 (c2) 2

SHAPE OF FOURTH LEAF: (a1) 4 (c1) 4 (c2) 4

3. COTYLEDON TO FOURTH LEAF STAGE: (continued)



1. Transverse oval 2. Round 3. Oval 4. Elongated 5. Lanceolate 6. Pinnately lobed

LENGTH/WIDTH INDEX OF FOURTH LEAF: L/W x 10

(a1) 16 (c1) 19 (c2) 20

APICAL MARGIN:
1 = Entire
2 = Crenate/Gnawed
3 = Finely Dentate
4 = Moderately Dentate
5 = Coarsely Dentate
6 = Incised
7 = Lobed
8 = Other (Specify) _____

(a1) 3 (c1) 3 (c2) 3

BASAL MARGIN: (Use the options for Apical Margin above)

(a1) 4 (c1) 4 (c2) 4

UNDULATION: 1 = Flat 2 = Slight 3 = Medium 4 = Marked

(a1) 1 (c1) 1 (c2) 1

GREEN COLOR:
1 = Yellow Green
2 = Light Green
3 = Medium Green
4 = Dark Green
5 = Blue Green
6 = Silver Green
7 = Grey Green

(a1) 4 (c1) 4 (c2) 4

ANTHOCYANIN:

DISTRIBUTION:
1 = Absent
2 = Margin Only
3 = Spotted
4 = Throughout
5 = Other (Specify) _____

(a1) 1 (c1) 1 (c2) 1

CONCENTRATION: 1 = Light 2 = Moderate 3 = Intense

(a1) - (c1) - (c2) -

ROLLING: 1 = Absent 2 = Present

(a1) 2 (c1) 2 (c2) 2

CUPPING: 1 = Uncupped 2 = Slight 3 = Markedly

(a1) 1 (c1) 1 (c2) 1

REFLEXING: 1 = None 2 = Apical Margin 3 = Lateral Margins

(a1) 3 (c1) 3 (c2) 3

4. MATURE LEAVES (Observe Harvest-Mature Outer Leaves)

NOTE: Provide color photo of a harvest-mature leaf which accurately shows color and margin characteristics.

MARGIN:

INCISION DEPTH: (deepest penetration of the margin) 1 = Absent/Shallow (Dark Green Boston) 2 = Moderate (Vanguard) 3 = Deep (Great Lakes 659)

(a1) [2] (c1) [2] (c2) [2]

INDENTATION: (Finest divisions of the margin)

1 = Entire (Dark Green Boston)
2 = Shallowly Dentate (Great Lakes 65)
3 = Deeply Dentate (Great Lakes 659)
4 = Crenate (Vanguard)
5 = Other (Specify) _____

(a1) [4] (c1) [4] (c2) [4]

UNDULATIONS OF THE APICAL MARGIN: 1 = Absent/Slight (Dark Green Boston) 2 = Moderate (Vanguard) 3 = Strong (Great Lakes 659)

(a1) [2] (c1) [2] (c2) [2]

GREEN COLOR:

1 = Very Light Green (Bibb)
2 = Light Green (Minetto)
3 = Medium Green (Great Lakes)
4 = Dark Green (Vanguard)
5 = Very Dark Green
6 = Other (Specify) _____

(a1) [4] (c1) [4] (c2) [4]

ANTHOCYANIN:

DISTRIBUTION:

1 = Absent
2 = Margin Only (Big Boston)
3 = Spotted (California Cream Butter)
4 = Throughout (Prize Head)
5 = Other (Specify) _____

(a1) [1] (c1) [1] (c2) [1]

CONCENTRATION: 1 = Light (Iceberg) 2 = Moderate (Prize Head) 3 = Intense (Ruby)

(a1) [-] (c1) [-] (c2) [-]

SIZE: 1 = Small 2= Medium 3 = Large

(a1) [-] (c1) [-] (c2) [-]

GLOSSINESS: 1 = Dull (Vanguard) 2 = Moderate (Salinas) 3 = Glossy (Great Lakes)

(a1) [02] (c1) [02] (c2) [02]

BLISTERING: 1 = Absent/Slight (Salinas) 2 = Moderate (Vanguard) 3 = Strong (Prize Head)

(a1) [01] (c1) [01] (c2) [01]

LEAF THICKNESS: 1 = Thin 2 = Intermediate 3 = Thick

(a1) [03] (c1) [03] (c2) [03]

TRICHOMES: 1 = Absent (Smooth) 2 = Present (Spiny)

(a1) [01] (c1) [01] (c2) [01]

5. PLANT:

SPREAD OF FRAME LEAVES: (a1) [60] cm (c1) [62] cm (c2) [55] cm

5. PLANT: (continued)

HEAD DIAMETER: (Market Trimmed with Single Cap Leaf)

(a1) 19 cm (c1) 18 cm (c2) 17 cm

HEAD SHAPE: 1 = Flattened 2 = Slightly Flattened 3 = Spherical 4 = Elongate 5 = Non-Heading
6 = Other (Specify)_____

(a1) 02 (c1) 02 (c2) 03

HEAD SIZE CLASS: 1 = Small 2 = Medium 3= Large

(a1) 03 (c1) 03 (c2) 03

HEAD PER CARTON:

(a1) (c1) (c2)

HEAD WEIGHT:

(a1) 0725 g. (c1) 0735 g. (c2) 0665 g.

HEAD FIRMNESS: 1 = Loose 2 = Moderate 3= Firm 4 = Very Firm

(a1) 3 (c1) 3 (c2) 3

6. BUTT:

SHAPE: 1 = Slightly Concave 2 = Flat 3 = Rounded

(a1) 2 (c1) 2 (c2) 2

MIDRIB: 1 = Flattened (Salinas) 2 = Moderately Raised 3 = Prominently Raised (Great Lakes 659)

(a1) 2 (c1) 1 (c2) 1

7. CORE:

DIAMETER AT BASE OF HEAD:

(a1) 37 mm (c1) 35 mm (c2) 36 mm

RATIO OF HEAD DIAMETER/CORE DIAMETER:

(a1) 05.1 (c1) 05.1 (c2) 04.7

CORE HEIGHT FROM BASE OF HEAD TO APEX:

(a1) 55 mm (c1) 51 mm (c2) 63 mm

8. BOLTING: (Give First Water Date: 02 MAY 2006) NOTE: First Water Date is the date seed first receives adequate moisture to germinate. This can and often does equal the planting date.

NUMBER OF DAYS FROM FIRST WATER DATE TO SEED STALK EMERGENCE: (summer conditions)

(a1) 061 (c1) 065 (c2) 059

BOLTING CLASS: 1 = Very Slow 2 = Slow 3 = Medium 4 = Rapid 5 = Very Rapid

(a1) 3 (c1) 2 (c2) 3

HEIGHT OF MATURE SEED STALK: 165 160 140

(a1) cm (c1) cm (c2) cm

8. **BOLTING:** (continued)

SPREAD OF BOLTER PLANT: (At widest point)

(a1) 55 cm (c1) 52 cm (c2) 49 cm

BOLTER LEAVES: 1 = Straight 2 = Curved

(a1) 1 (c1) 1 (c2) 1

MARGIN: 1 = Entire 2 = Dentate

(a1) 2 (c1) 2 (c2) 2

COLOR: 1 = Light Green 2 = Medium Green 3 = Dark Green

(a1) 3 (c1) 3 (c2) 3

BOLTER HABIT:

TERMINAL INFLORESCENCE: 1 = Absent 2 = Present

(a1) 2 (c1) 2 (c2) 2

LATERAL SHOOTS: 1 = Absent 2 = Present

(a1) 2 (c1) 2 (c2) 2

BASAL SIDE SHOOTS: 1 = Absent 2 = Present

(a1) 2 (c1) 2 (c2) 2

9. **MATURITY:** (earliness of harvest-mature head formation)

NOTE: Complete this section for at least one season.

SEASON	APPLICATION VARIETY No. of Days[1]			MOST SIMILAR VARIETY No. of Days[1]			STANDARD REGIONAL CHECK VARIETY No. of Days[1]		
Spring									
Summer		59			57			55	
Fall									
Winter									

[1] *First Water Date to Harvest*

Give Planting Date(s) and Location(s):

Spring: _____

Summer: 13-June-2006 Wageningen, Netherlands

Fall: _____

Winter: _____

10. **ADAPTATION:**

PRIMARY REGIONS OF ADAPTATION (tested and proven adapted):

0 = Not Tested 1 = Not Adapted 2 = Adapted

2 Southwest (CA and/or AZ desert)
0 North Central
0 West Coast
0 Southeast
0 Northeast
0 Other (Specify) _____

10. ADAPTATION: (Continued)

SEASON:

[0] Spring (Area _____)
[2] Summer (Area CA)
[0] Fall (Area _____)
[0] Winter (Area _____)

[1] **GREENHOUSE:** 0 = Not Tested 1 = Not Adapted 2 = Adapted

[3] **SOIL TYPE:** 1 = Mineral 2 = Organic 3 = Both

11. VIRAL DISEASES:

1 = Immune 3 = Resistant 5 = Moderately Resistant/Moderately Susceptible 7 = Susceptible 9 = Highly Susceptible

	(a1)	(c1)	(c2)
Big Vein	[ ]	[ ]	[ ]
Lettuce Mosaic	[3]	[3]	[7]
Cucumber Mosaic	[ ]	[ ]	[ ]
Tomato Bushy Stunt, cause of dieback	[ ]	[ ]	[ ]
Turnip Mosaic	[ ]	[ ]	[ ]
Beet Western Yellows	[ ]	[ ]	[ ]
Lettuce Infectious Yellows	[ ]	[ ]	[ ]
Other (Specify) _____	[ ]	[ ]	[ ]

12. FUNGAL/BACTERIAL DISEASES:

1 = Immune 3 = Resistant 5 = Moderately Resistant/Moderately Susceptible 7 = Susceptible 9 = Highly Susceptible

	(a1)	(c1)	(c2)
Corky Root Rot (Races: _____)	[ ]	[ ]	[ ]
Downy Mildew (Races: Be 1-16, 21, 23)	[3]	[3]	[7]
Powdery Mildew	[ ]	[ ]	[ ]
Sclerotinia Drop	[ ]	[ ]	[ ]
Bacterial Soft Rot (*Pseudomonas* spp. and others)	[ ]	[ ]	[ ]
Botrytis (Grey Mold)	[ ]	[ ]	[ ]
Verticillium Wilt	[ ]	[ ]	[ ]
Bacterial Leaf Spot	[ ]	[ ]	[ ]
Anthracnose	[ ]	[ ]	[ ]
Other (Specify) _____	[ ]	[ ]	[ ]

13. INSECTS:

1 = Immune 3 = Resistant 5 = Moderately Resistant/Moderately Susceptible 7 = Susceptible 9 = Highly Susceptible

	(a1)	(c1)	(c2)
Cabbage Loopers	[ ]	[ ]	[ ]
Root Aphids	[ ]	[ ]	[ ]
Green Peach Aphid	[ ]	[ ]	[ ]
Lettuce Aphid	[3]	[9]	[9]

Pea Leafminer	(a1)	☐	(c1)	☐	(c2)	☐
Other (Specify) _____	(a1)	☐	(c1)	☐	(c2)	☐

14. PHYSIOLOGICAL STRESSES:

1 = Immune 3 = Resistant 5 = Moderately Resistant/Moderately Susceptible 7 = Susceptible 9 = Highly Susceptible

Tipburn	(a1)	☐	(c1)	☐	(c2)	☐
Heat	(a1)	☐	(c1)	☐	(c2)	☐
Drought	(a1)	☐	(c1)	☐	(c2)	☐
Cold	(a1)	☐	(c1)	☐	(c2)	☐
Salt	(a1)	☐	(c1)	☐	(c2)	☐
Brown Rib (Rib Discoloration, Rib Blight)	(a1)	☐	(c1)	☐	(c2)	☐
Other (Specify) _____	(a1)	☐	(c1)	☐	(c2)	☐

15. POST HARVEST STRESS:

1 = Immune 3 = Resistant 5 = Moderately Resistant/Moderately Susceptible 7 = Susceptible 9 = Highly Susceptible

Pink Rib	(a1)	☐	(c1)	☐	(c2)	☐
Russet Spotting	(a1)	☐	(c1)	☐	(c2)	☐
Rusty Brown Discoloration	(a1)	☐	(c1)	☐	(c2)	☐
Internal Rib Necrosis (Blackheart, Grey Rib, Grey Streak)	(a1)	☐	(c1)	☐	(c2)	☐
Brown Stain	(a1)	☐	(c1)	☐	(c2)	☐

16. BIOCHEMICAL OR ELECTROPHORETIC MARKERS: N/A

17. COMMENTS:

SUGGESTED CHECK VARIETIES

	TYPE	CHECK VARIETY
1	Cutting/Leaf	Waldmann's Green
2	Butterhead	Dark Green Boston
3	Bibb	Bibb
4	Cos or Romain	Parris Island
5	Great Lakes Group	Great Lakes 659-700
6	Vanguard Group	Vanguard
7	Salinas Group	Salinas
8	Eastern Group	Ithaca
9	Stem	Celtuce
10	Latin	Little Gem

REFERENCES

Bowring, J.D.C., 1969, "*The Identification of Varieties of Lettuce (Lactuca Sativa* L.)". Journal of the National Institute of Agricultural Botany 11:499-520. National Institute of Agricultural Botany, Cambridge, UK.

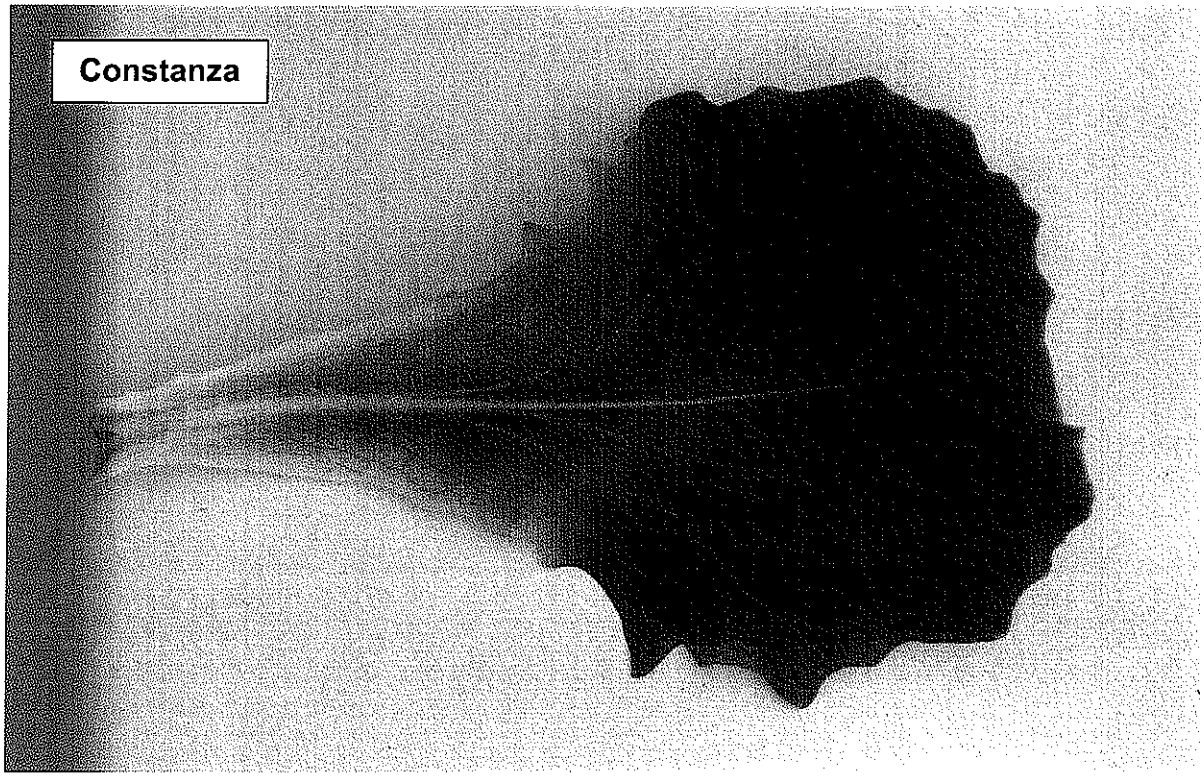
Davis, R.M., K.V. Subbarao, R.N. Raid, and E.A. Kurtz, 1997. "*Compendium of Lettuce Diseases*". APS Press, St. Paul, MN.

Michelmore, R.W., J. M. Norwood, D.S. Ingram, I.R. Crute and P. Nicholson. 1984. "*The interitance of virulence in Bremia lactucae to match resistance factors 3, 4, 5, 6, 8, 9, 10, and 11 in lettuce (Lactuca sativa)*", Plant Pathology 32:176-177.

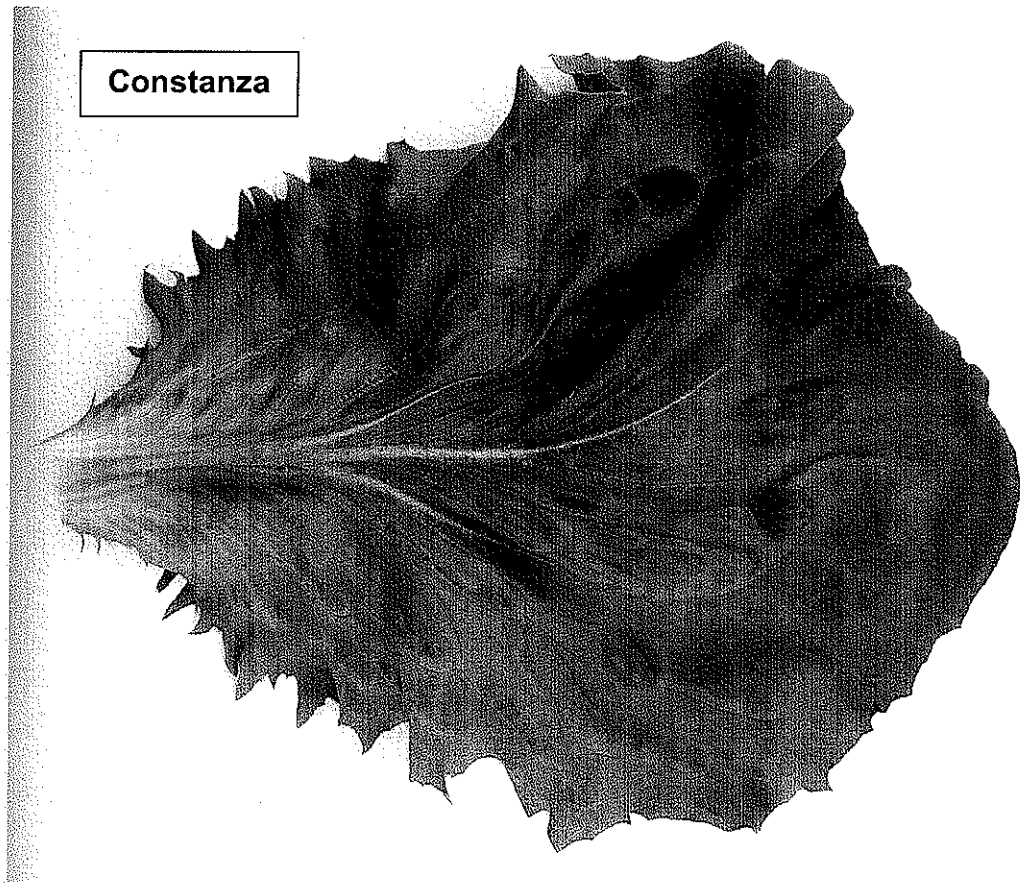
Norwood, J.M., R.W. Michelmore, I.R. Crute and D.S. Ingram. 1983. "*The inheritance of specific virulence of Bremia lactucae (Downy Mildew) to match R-factors 1, 2, 4, 6, and 11 in lettuce (Lactuca sativa)*". Plant Pathology 32:176-177.

Rodenburg, C.M., et al., 1960. "*Varieties of Lettuce. An International Monograph*", Instituut voor de Verdeling van Tuinbouwgewassen (IVT), Wageningen, NL.

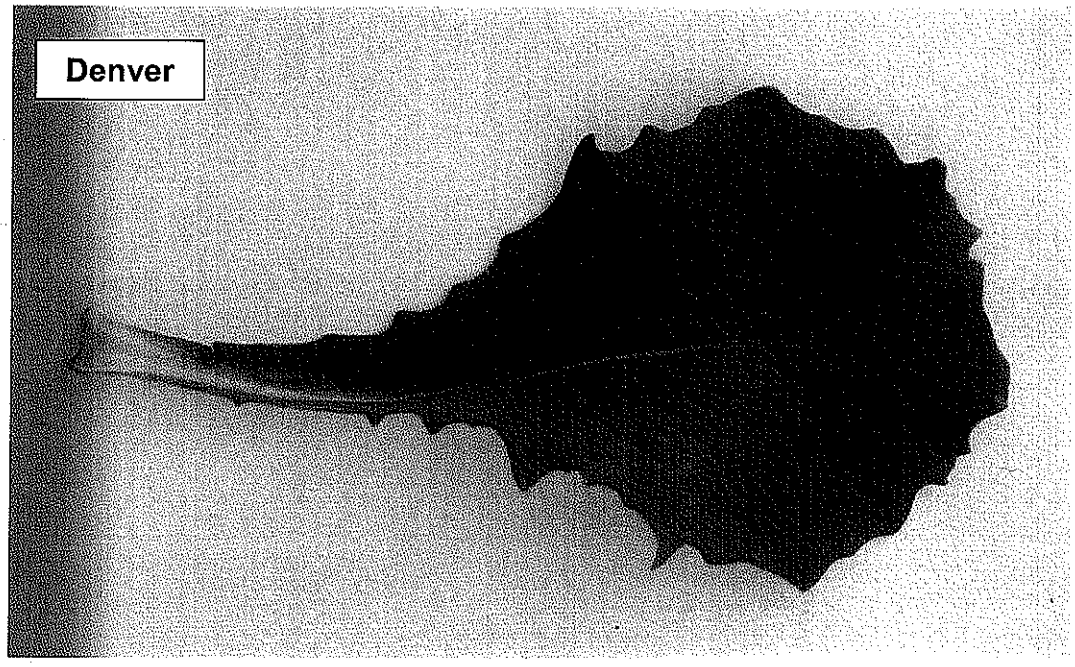
Ryder, E.J., 1999, *Lettuce, Endive, and Chicory*, CABI Publications, Wallingford, UK.



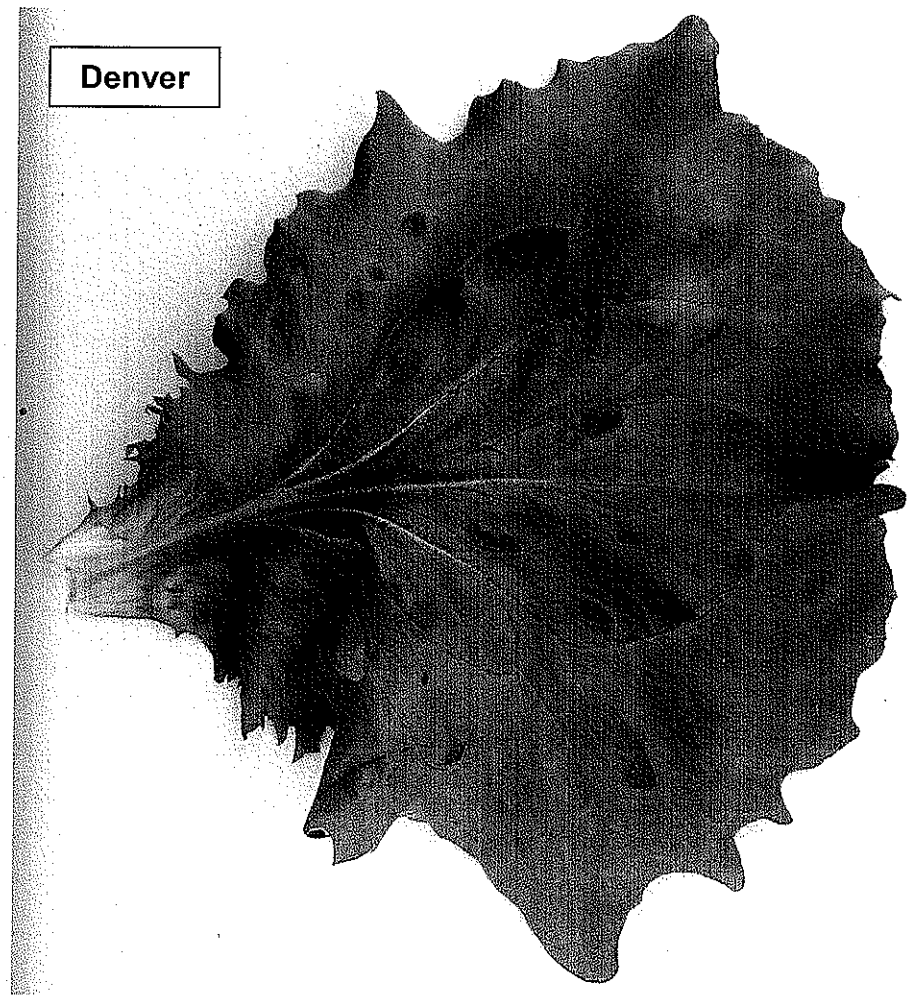
Fourth leaf from 20-day old seedlings of 'Constanza'



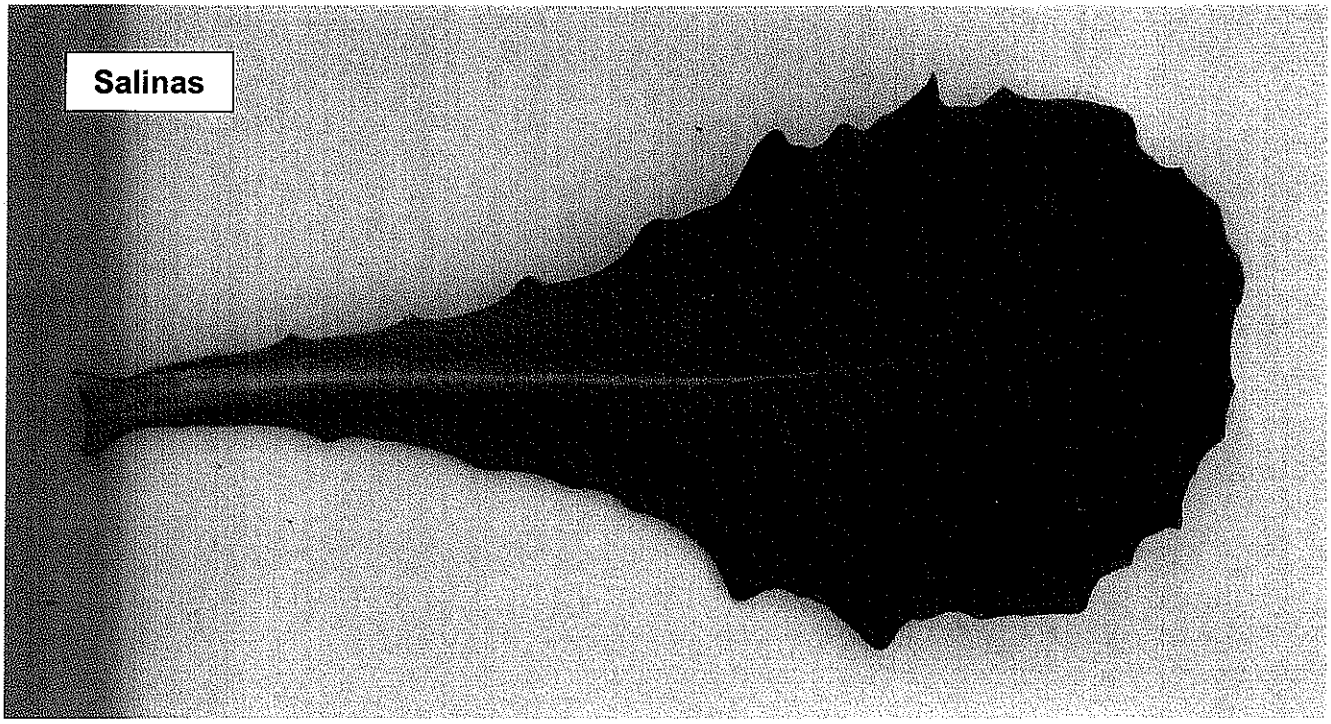
Harvest – mature leaf of 'Constanza'



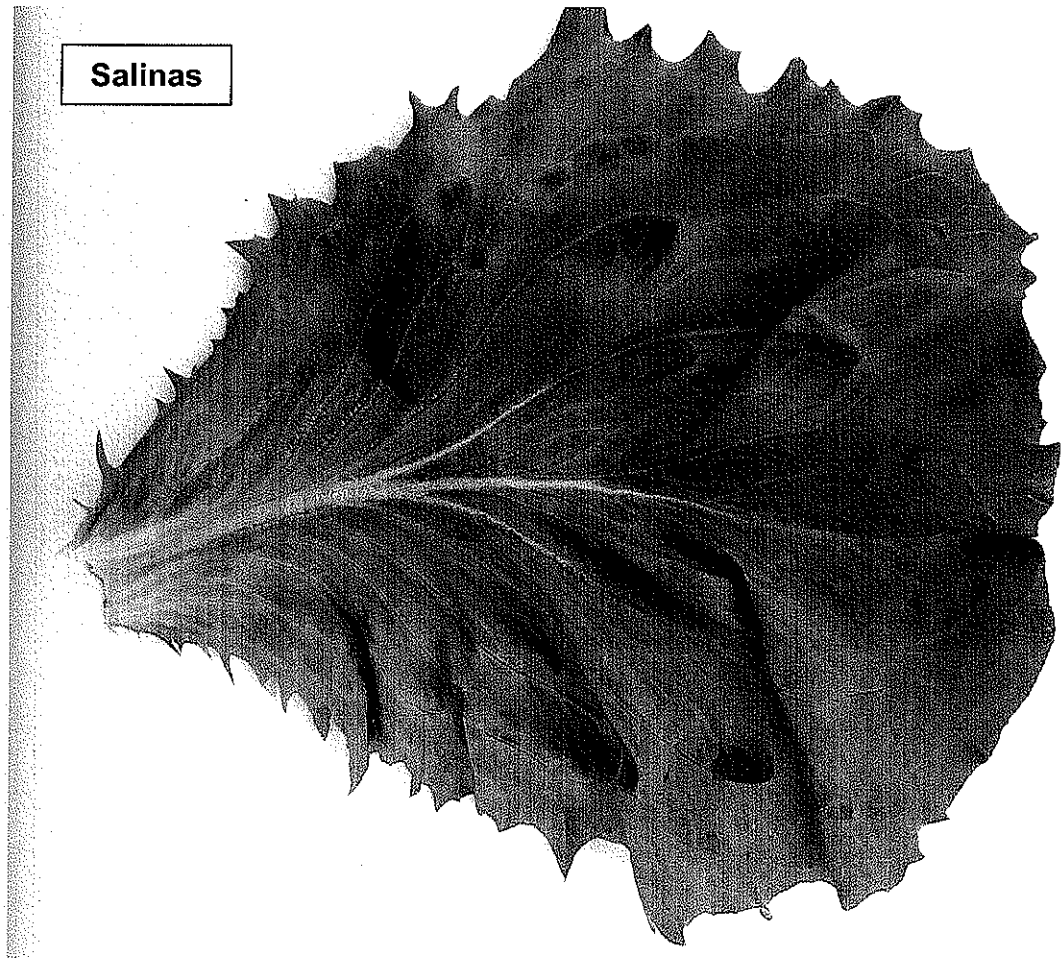
Fourth leaf from 20-day old seedlings of 'Denver'



Harvest – mature leaf of 'Denver'



Fourth leaf from 20-day old seedlings of 'Salinas'



Harvest – mature leaf of 'Salinas'

NAKG #200700030

	Applicationnumber: 10668 Date application : 02/09/97 Date sample : 08/09/97
Species	Lettuce
Name	Denver
Denomination in trials	RS 952577
Applicant	SVS Holland B.V. Postbus 22 1600 AA ENKHUIZEN
Maintainer	Royal Sluis B.V. Postbus 163 1600 AP ENKHUIZEN
Trials	Trials NAKG 1998 and breeders' co-trials.
Uniformity	Sufficient.
Stability	Sufficient.
Distinctness	Denver is a distinct variety. It resembles Antigua, but has other resistancepattern, slightly larger plant and slightly less grey green leaves with slightly more coarse dentation of margin.
Description	See annex
Remarks	The resistance-test technique is checked at the company. The resistances, tested by the applicant, are according to our findings to be considered reliable.
Date of description	

DESCRIPTION

#200700030
NAKG

Species: Lettuce

Appl.nr.: 10668

Variety: Denver

Denom. in trials: RS 952577

Group: whiteseeded crisp lettuce varieties without anthocyanin for outdoor growing with Bremia pattern ---/---/-**/---/---/- and resistance to LMV.

UPOV guideline: TG/13/7

UPOV nr	Character	Class	Note	Remarks
1	Seed: color	white	1	
2	Seedling: anthocyanin coloration of hypocotyl	absent	1	
4	Seedling: shape of cotyledon	narrow elliptic to elliptic	4	
5	Leaf: attitude at 10-12 leaf stage	semi-erect	5	
6	Leaf blade: division at 10-12 leaf stage	entire	1	
	Plant: type	crisp	2	
7	Plant: diameter	large	7	
8	Plant: head formation	closed head	3	
9	Head: degree of overlap ping upper part of leaves	strong	7	
10	Head: density	dense to very dense	8	
11	Head: size	medium to large	6	
12	Head: closing of base	-	-	
13	Head: shape in longitudinal section	tranverse elliptic	4	to circular
14	Leaf: thickness	thick	7	
15	Leaf: attitude outer lea ves at harvest maturity	semi-erect to nearly horizontal	6	
16	Leaf: shape	transverse broad elliptic	5	
17	Leaf: color of outer leaves	greyish green	3	to green
18	Leaf: intensity of color of outer leaves	medium	5	to dark
19	Leaf: anthocyanin coloration	absent	1	
20	Leaf: intensity of anthocyanin coloration	-	-	
21	Leaf: distribution of anthocyanin	-	-	
22	Leaf: kind of anthocyanin distribution	-	-	
23	Leaf: glossiness of upper side	weak	3	
24	Leaf: surface profile of outer leaves	flat	5	to concave
25	Leaf: blistering	weak	3	
26	Leaf: size of blisters	small	3	
27	Leaf blade: degree of undulation of margin	weak	3	
28	Leaf blade: incisions on margin on apical part	present	9	
29	Leaf blade: depth of inci sions margin apical part	medium	5	
30	Leaf blade: degree of inc isions margin apical part	medium	5	
31	Leaf blade: venation	flabellate	2	
33	Stem: fasciation	present	9	
35	Axillary sprouting	-	-	
36	Time of harvest maturity	late	7	
37	Time of beginning of bolting	very late	9	
38	Bremia lactucae (downy mildew)	resistant	9	---/---/-**/---/---/-
39	Lettuce mosaic virus (LMV) strain Ls-1	resistant	9	

Applicationnumber:	10668
Distinctness:	Denver is a distinct variety. It resembles Antigua, but has other resistancepattern, slightly larger plant and slightly less grey green leaves with slightly more coarse dentation of margin.
Date description:	

REPRODUCE LOCALLY. Include form number and edition date on all reproductions. FORM APPROVED - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued *(7 U.S.C. 2421)*. The information is held confidential until the certificate is issued *(7 U.S.C. 2426)*.

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
Seminis Vegetable Seeds, Inc.		Constanza
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	**5. TELEPHONE** *(Include area code)*	**6. FAX** *(Include area code)*
2700 Camino del Sol Oxnard, California 93030	(805) 647-1572	(805) 918-2545
	7. PVPO NUMBER 200700030	

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. **If no, please explain.** ☑ **YES** ☐ **NO**

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? **If no, give name of country.** ☑ **YES** ☐ **NO**

10. Is the applicant the original owner? ☑ **YES** ☐ **NO** **If no, please answer one of the following:**

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
☐ **YES** ☐ **NO** **If no, give name of country**

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
☐ **YES** ☐ **NO** **If no, give name of country**

11. Additional explanation on ownership *(Trace ownership from original breeder to current owner. Use the reverse for extra space if needed)*:

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT F
DECLARATION REGARDING DEPOSIT

NAME OF OWNER (S)	ADDRESS *(Street and No. or RD No., City, State, and Zip Code and Country)*	TEMPORARY OR EXPERIMENTAL DESIGNATION
Seminis Vegetable Seeds, Inc.	2700 Camino del Sol Oxnard, CA 93030	VARIETY NAME Constanza
NAME OF OWNER REPRESENTATIVE (S)	**ADDRESS *(Street and No. or RD No., City, State, and Zip Code and Country)***	FOR OFFICIAL USE ONLY
Carol L. Miller	2700 Camino del Sol Oxnard, CA 93030	PVPO NUMBER 200700030

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Carol L Miller
Signature

11-13-06
Date